

THE AUSTRALIAN SPECIES OF *ONCOPERA* (HEPIALIDAE, LEPIDOPTERA).

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(Plate xxxii.)

[Read 24th June, 1925.]

Introduction (by A. J. Turner).

Some two years ago, in response to a request from Mr. Eyer for specimens of Hepialidae for the examination of their genitalia, I sent him examples of *Oncopera mitocera* Turn. taken in the National Park, Macpherson Range, Queensland. I was surprised to hear that I had, in his opinion, included another species, and it was only after a considerable time that I recognized that I had a second example of this previously unrecognized species, to which I have given the name *epargyra*. Meanwhile Mr. Eyer returned my first specimen with a microscope slide of the genitalia. These circumstances led me to make a critical examination of all my material, and I came to the conclusion that I had probably a third closely allied species from Herberton, for which I proposed the name *brachyphylla*. Mr. Eyer confirmed this from an examination of the genitalia, and sent me a slide of these, together with microphotographs of the genitalia of *mitocera* and *brachyphylla*, and a drawing of those of *intricata*. He also sent a key to the four species with the exception of *epargyra*, of which he had previously returned the only preparation he had made. Mr. A. Philpott, of the Cawthron Institute, Nelson, New Zealand, has very kindly completed the key, and Mr. W. C. Davies of the same Institute has sent me an excellent photograph of the genitalia of *epargyra*.

Key to the species of Oncopera based on the characters of the male genitalia

(by John R. Eyer; *epargyra* by A. Philpott).

Group I. Sacculus absent.

Valves without sacculus, cucullus expanded and spoon-like; vinculum wide-margined and possessing a prominent median process to which the posterior margin of the eighth sternite is attached; eighth sternite triangular, longer than wide, and with the anterior margin emarginate; tegumen without anal spines; scale sacks on conjunctiva between eighth tergite and tegumen present; aedeagus a small transverse plate; opening of penis bounded laterally by two heavy processes from the meson of the tegumen *mitocera* Turn.

Valves without sacculus, cucullus not expanded distally; vinculum narrow-margined and with the median process only slightly developed; eighth sternite rectangular, almost as broad as long; tegumen with a pair of short sharp anal spines; scale sacks absent; other characters as in *O. mitocera* *intricata* Walk.

Group II. Sacculus present.

Valves with short sacculus, cucullus long and finger-like; vinculum narrow-margined and without median process; eighth sternite keystone-shaped; tegumen with two anal spines which are continuous with two long inner processes which cover the opening of the penis; scale sacks present; aedeagus a rectangular plate much longer than wide *brachyphylla* Turn.

Valves with sacculus narrow and acutely pointed, almost as long as cucullus, cucullus less broad than in *brachyphylla*, not dilated apically; eighth sternite shuttlecock-shaped, upper angles projecting; vinculum broad, not emarginate, without median process; aedeagus a somewhat ovate plate *epargyra* Turn.

Key to superficial characters and descriptions of new species
(by A. J. Turner).

1. Antennae slightly clubbed towards apex. Femoral hair-tufts of ♂ very large and reaching beyond tarsi *intricata*
Antennae short, thread-like. Femoral hair-tufts of ♂ moderate and not reaching beyond tarsi 2
2. Expanse, ♂ 42-46 mm. Forewings elongate and rather narrow, without silvery-white markings or with dots only *mitocera*
Expanse, ♂ 35-40 mm. Forewings shorter and proportionately broader, frequently with oblique or longitudinal silvery-white streak 3
3. Forewings rather sharply pointed, with much fuscous suffusion. Hindwings with apices grey *epargyra*
Forewings with apex more bluntly rounded, little or no fuscous suffusion. Hindwings with apices not grey *brachyphylla*

ONCOPERA INTRICATA Wlk. Plate xxxii, fig. 1.

New South Wales: Mt. Kosciusko. Victoria: Melbourne, Warragul, Gisborne. Tasmania: Hobart, Maria Island, Swansea, Bothwell, Launceston, Deloraine, Moina (2,000 ft.).

ONCOPERA MITOCERA Turner. Plate xxxii, fig. 2.

Annals Queensland Museum, x, 1911, p. 132.

North Queensland: Cairns, Atherton, Herberton. Queensland: National Park (3,000 ft.).

ONCOPERA EPARGYRA, n. sp. Plate xxxii, fig. 4.

ἐπάργυρος, overlaid with silver.

♂. 36-41 mm. Head and thorax fuscous-brown. Antennae fuscous. Abdomen fuscous, becoming whitish-grey towards apex. Legs fuscous; posterior pair and tuft pale-ochreous. Forewings elongate-triangular, costa straight, slightly arched near base and apex, apex sharp-pointed, termen nearly straight, strongly oblique; dark-fuscous mixed with brown, paler towards base and costa; four or five fuscous spots on terminal half of costa; a variable, silvery-white, discal spot at two-thirds connected by a silvery-white oblique streak to dorsum before tornus, but this is not always present; cilia brownish barred with fuscous. Hindwings with apex round-pointed, termen slightly rounded; dark-fuscous; a suffused whitish-grey apical blotch, containing four costal fuscous dots; cilia as forewings.

Queensland: National Park (3,000 ft.) in December, two specimens.

ONCOPERA BRACHYPHYLLA, n. sp. Plate xxxii, fig. 3.

βραχύφυλλος, short-winged.

♂. 35-40 mm. Head and thorax brown. Antennae fuscous. Abdomen fuscous-brown. Legs brown. Forewings triangular, costa straight, arched towards apex, apex round-pointed, termen bowed, oblique; brown with little or no fuscous suffusion; costal area paler with some darker strigulae; a variable white discal mark at three-fourths, sometimes connected by an oblique white streak with dorsum before tornus; sometimes a short, broadly-suffused, white streak from base below middle; cilia brown. Hindwings with apex rounded, termen slightly rounded; fuscous-brown, cilia fuscous-brown.

North Queensland: Evelyn Scrub near Herberton, in January and February; four specimens received from Mr. F. P. Dodd.

Explanation of Plate xxxii (by John R. Eyer).

1. *Oncopera intricata* Wlk.
2. *Oncopera mitocera* Turn.
3. *Oncopera brachyphylla*, n. sp.
4. *Oncopera epargyra*, n. sp.

- a—anus. A membraneous tube at the very caudal end of the genitalia usually opening just behind and on the meson of the tegumen.
- ap—anal process. A pair of processes from the caudal margin of the tegumen which in the Hepialidae often surround the anus.
- ss—scale sacks. A pair of eversible sacks covered with scales which occur on the conjunctiva between the 8th tergite and the tegumen. The Hepialidae is the only family in which I have found them to occur in this position. They are usually ventral and between the sternites.
- t—tegumen. The ninth tergite which is highly modified to form the dorsal hood of the genitalia and surround the anus.
- p—penis. A membraneous tube usually opening near the centre of the genitalia and in the Hepialidae often supported by a pair of processes from the meson of the tegumen.
- pr—mesal processes of the tegumen just referred to.
- ae—the aedeagus, i.e., the chitinized armature supporting the penis. In the Hepialidae it consists of a plate on the ventral wall of the penis; in the higher Lepidoptera it is usually a chitinized tube which completely surrounds the penis.
- v—valve. A pair of finger-like claspers articulated to a median plate, the "juxta", and serving as claspers to hold the female during copulation. In species such as *brachyphylla* the valves are divided into a posterior finger-like lobe, "cucullus", and an anterior acutely pointed lobe, the "sacculus". These lobes take many forms in various species of Lepidoptera but the sacculus is usually the more heavily chitinized and the cucullus the more hairy of the two.
- j—juxta, just described above.
- cc—cucullus, just described above.
- sc—sacculus, just described above.
- vm—vinculum. The ninth sternite usually modified to form a v- or u-shaped structure with a pair of lateral arms which extend dorsad to meet the tegumen.
- mp—median process of the vinculum.
- s8—eighth sternite. In the Hepialidae this forms a chitinized plate underlying the vinculum. Its shape varies in different species.
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